**SNC1P – Exam Review: ECOLOGY**

1. Define the following terms:

|  |  |  |
| --- | --- | --- |
| Biotic factors | Producer | Biodiversity (more by equator) |
| Abiotic factors | Consumer | Pest |
| Niche | Extinct | Pesticide |
| Herbivore (second trophic level) | Endangered | Habitat |
| Carnivore | Extirpated | Ecosystem |
| Omnivore | Invasive Species | Food Chain & Food Web |
| Photosynthesis | Competition | Population |
| Insecticide | Atmosphere | Biosphere |

1. Explain the difference between abiotic and biotic factors. List 2 examples of each.

Biotic= living things e.g. a tree, a human

Abiotic=non-living things e.g. water, rocks, temperature

1. What are producers/consumers and how do they relate to each other? What are the different types of consumers?

Producers = organisms that make their own food e.g. plants

Consumers = organisms that consumes other organisms

* Herbivores = eat plants only
* Carnivores = eat animals only
* Omnivores = eat both plants and animals

1. Describe the carbon and water cycle.

Carbon Cycle = processes that moves carbon throughout the lithosphere, atmosphere, hydrosphere and biosphere (check page 50 for the diagram)

Water Cycle= processes that moves water throughout the lithosphere, atmosphere, hydrosphere and biosphere (check page 50-54 for the diagram)

1. Draw a food chain. See question 9.
2. Write the word equation for Photosynthesis

carbon dioxide + water + energy → oxygen + sugar

1. Write the word equation for Cellular Respiration

glucose + oxygen → carbon dioxide + water + energy

1. What are 3 ways humans can affect the carrying capacity of an ecosystem? Explain.

Hunting, irrigation, overgrazing pg. 57

1. Consider the following food web:

****grass moose wolves crows

coyotes

**Table 1.** Consequences of removing the wolf population from the food web.

|  |  |  |
| --- | --- | --- |
| **Population affected** | **Increase or decrease?** | **Explanation** |
| Coyote | INCREASE | Less wolves means less crows since crows feed on wolves. Less crows means more coyotes since crows feed on coyotes. |
| Moose | INCREASE | Less wolves means more moose since wolves feed on moose. |
| Grass | DECREASE | Less wolves means more moose, More moose means less grass since moose feed on grass. |
| Crow | DECREASE | Less wolves means less crows since crows feed on wolves. Less crows means more coyotes since crows feed on coyotes. |

1. \_\_\_\_\_\_\_\_Sunlight\_\_\_\_\_ What is the source of energy for organisms on Earth? (p. 38)

11. \_\_\_\_\_\_\_\_\_\_\_\_70%\_\_\_\_ How much of the Sun’s energy warms the surface of the

Earth?

12. \_\_\_\_\_\_\_\_\_0.023%\_\_\_\_\_\_ How much of the Sun’s energy is actually used by green

plants to make food?

13. \_\_\_\_\_\_\_\_\_\_\_30%\_\_\_\_\_\_\_\_ How much of the Sun’s energy is reflected by clouds or

the Earth’s surface?

**Table 2.** Energy transfer in food chains. (p. 44)

|  |  |  |  |
| --- | --- | --- | --- |
| **Energy level** | **Producer, primary consumer,**  **or secondary consumer?** | **Plant, herbivore, or carnivore?** | **Most energy, less energy, or least energy? (p. 24.)** |
| 3rd tropic level | secondary consumer | carnivore | least energy |
| 2nd tropic level | primary consumer | herbivore | less energy |
| 1st tropic level | Producer | Plant | least energy |

14. Carbon dioxide (CO2) is the form of carbon in the atmosphere. How is carbon dioxide released into the atmosphere? (p. 50) auto/factory emissions, burning wood, animal respiration

15. \_\_\_\_\_\_\_\_\_\_Pesticide\_\_\_\_\_\_\_\_\_\_\_\_ What is the term for chemicals designed to kill

pests? (p. 139)

16. Describe three ways that pesticides are beneficial. (p. 139)

Kill pests, protect crops, less illness

**SNC1P – Exam Review: CHEMISTRY**

1. Define:

|  |  |  |
| --- | --- | --- |
| Solution | Malleability | Compound |
| Mechanical Mixture | Ductility and hardness | Density |
| Pure Substance | Metal | Lustre |
| Physical Change | Non metal | States of matter |
| Chemical Change | Metalloid | Conductivity |
| Viscosity | Atom | Precipitate |
| Halogens | Noble Gases | Bohr-Rutherford Diagram |

1. Place a (P) beside the **properties** that are physical and (C) beside the **properties** that are chemical.

\_\_p\_\_ A. Blue Colour

\_C\_\_ B. A new chemical is produced when placed in water.

\_P\_\_ C. Melting point.

\_\_P\_\_ D. Changes state from a solid to a liquid.

\_P\_\_ E. Sour Taste.

1. Describe 3 clues that would indicate that a chemical change has taken place

New substance is formed, change in colour, bubbles or gas, energy is produced pg. 184

1. Place a (P) beside the changes that are physical and (C) beside the changes that are chemical.

\_P\_\_ A. Cutting up apples.

\_C\_\_ B. Burning of wood.

\_P\_\_ C. Freezing water on a pond.

\_\_C\_ D. Rusting of a nail.

\_C\_\_ E. Baking a cake.

\_P\_\_ F. Bending a paper clip

1. What is the difference between a metal and a non metal? Use terms such as appearance, conductivity, and malleability.

Metal= shiny, malleable, good conductor of electricity p.220

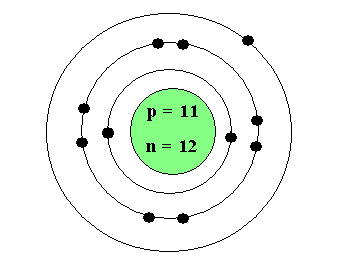
Non-metal, dull, brittle, poor conductor of electricity p.224

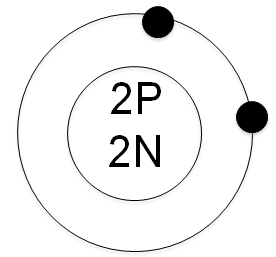
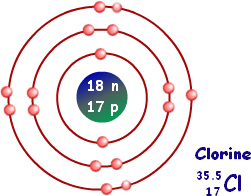
1. Fill in the following chart:

|  |  |  |
| --- | --- | --- |
| Particle | Location | Charge |
| Protons | NUCLEUS | POSITIVE |
| NUETRONS | NUCLEUS | Neutral |
| ELECTRONS | Orbit around the nucleus | NEGATIVE |

1. Complete the following table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Element | Atomic # | Mass # | Protons | Neutrons | Electrons | Bohr Diagram |
| Hydrogen | 1 | 1 | 1 | 0 | 1 |  |
| Potassium | 19 | 39 | 19 | 20 | 19 | https://o.quizlet.com/YoXnFmk2iWzV0cvN2O.t1g.jpg |
| Aluminum | 13 | 27 | 13 | 14 | 13 | [http://images.tutorcircle.com/cms/images/44/atomic-structure-of-aluminum(1).png](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://chemistry.tutorcircle.com/inorganic-chemistry/bohr-model.html&ei=kwt3VY6MBtCSyATjzYGADQ&bvm=bv.95039771,d.aWw&psig=AFQjCNE5x-z0VfjfCNYXdgbSeoOUdTv0RA&ust=1433951419366729) |
| Boron | 5 | 11 | 5 | 6 | 5 |  |
| Sulfur | 16 | 32 | 16 | 16 | 16 |  |
| Oxygen | 8 | 16 | 8 | 8 | 8 | [http://images.tutorcircle.com/cms/images/44/atomic-structure-of-oxygen.png](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://pixshark.com/bohr-model-oxygen.htm&ei=2Ax3Vb6qAYOHyQT68YKQAw&psig=AFQjCNELQqrC4290QQqRw_47gIMelKtoRQ&ust=1433951778682091) |

1. How many atoms are in CO2? 3 (1 carbon, and 2 oxygen)
2. [](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://socratic.org/questions/what-is-the-bohr-model-for-sodium&ei=Ig13VaOpIoH8yQT25oFw&psig=AFQjCNF-X4C_k40_uByqlyMy4P5s9yuygA&ust=1433951902878663)Draw the Bohr-Rutherford Diagram for:
3. Sodium c) Oxygen (check question 7)

[](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://chemistry.tutorcircle.com/inorganic-chemistry/bohr-model.html&ei=fg13VZa2Dc-XyAT6kYHgCA&psig=AFQjCNE0CjFwyJRjmoZZjpZyTTWeLLNi1w&ust=1433951994181707)

1. Chlorine d) Helium
2. What group number are the following:
3. Alkali Metals =Group 1 c) Halogens = Group 17
4. Alkaline Earth metals = Group 2 d) Noble Gases = Group 18

**SNC1P – Exam Review: ELECTRICITY**

1. Define:

|  |  |  |
| --- | --- | --- |
| Electric Charge | Conductor | Series circuit |
| Static electricity and friction | Insulator | Parallel circuit |
| Current electricity | Non-renewable energy source | Ammeter |
| Law of electric charges | Renewable energy source | Voltmeter |
| Charging by friction | Efficiency | Ohmmeter |
| Charging by induction | Electric circuit | Resistance |
| Charging by contact | Load | Voltage |
| Grounding | Switch | Current |
| Neutral/Positive/Negative Object | Repel/Attract | Brightness |

1. Discuss 3 methods of charging a neutral object (by friction, contact, and induction). Provide examples of each.
   1. Friction = rub two neutral objects together e.g. rub balloon on hair p. 468
   2. Contact = charge an object by contact with a charged object e.g. positive metal rod touches a neutral sphere pg 470
   3. Induction = charge a neutral object by bring a charge object CLOSE to it pg. 474
2. What are the units for **voltage (Volts, V), current (Ampere, A), and resistance (Ohms, Ω)?**
3. Describe what happens when a **negatively** charged object touches a neutral pith ball? Include a diagram.

The pith ball also becomes negative. Check page 470 for a diagram.

1. What does the **Law of Electric Charges** state?Opposite charges attract, like charges repel p462
2. What is **grounding?** Include a diagram. Removing a charge from an object by connecting it to earth. Check p 476 for a diagram.
3. What instrument is used to measure **current (Ammeter), voltage (Voltmeter), and resistance (Ohmmeter)?**
4. What is the difference between parallel and series circuits? Draw an example of each.

Series= loads are connected one after the other in one path p 502 for diagram,

Parallel = loads are connected in one more than one path p503 for diagram

1. Explain what happens when one bulb **burns out** in a series circuit. What about in a parallel circuit?

All bulbs will turn off in the series circuit. Some bulbs may still be on in the parallel circuit.

1. What is the difference between an insulator and a conductor?

Insulator = prevents the flow of electricity e.g wood

Conductors = allows electricity to flow through e.g. copper

1. What is the difference between a renewable and a non-renewable energy source? Provide an example of each.

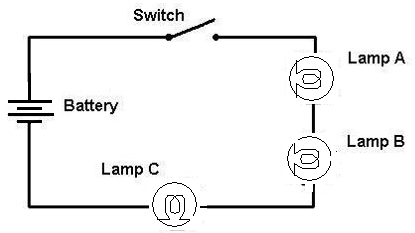
Renewable = energy that can be replaced in a short period of time p 428 e.g solar energy

NonRenewable = enery cannot be renewed or will take millions of years p. 424 e.g fossil fuels

1. What are 3 different forms of energy that we convert electrical energy into? Light energy, thermal energy, mechanical energy
2. An appliance runs for 3 hours a day everyday for a year. It uses 400 W/h. If electricity costs $0.10/kW, how much will it cost to run the appliance for a year?

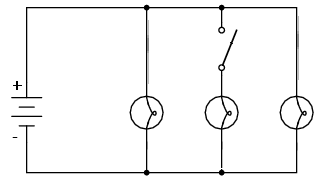
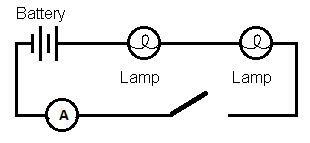
400 W/h = 0.4 KW/h 1 year = 365 days x 3 h/day = 1095 h



Total cost = 0.4 KW/h x 1095 x $0.10/kW = $43.8

1. Draw a circuit w ith a battery,

3 light bulbs and an open switch in series.

1. Draw a circuit with a battery, 3 light bulbs in parallel and include a switch that turns off only ONE light bulb.
2. Draw a battery, an open switch, 2 light bulbs and a device to measure current in series.
3. What is Ohm’s law? Explain how current and voltage differ in Parallel and Series circuits.
4. Complete the following table: p424-433

|  |  |  |
| --- | --- | --- |
| **Resource** | **Advantages** | **Disadvantages** |
| Fossil Fuels | Less expensive | Non-renewable, pollution, habitat loss etc |
| Nuclear Power | No pollution directly | Radioactive waste, non-renewable etc |
| Hydroelectric | No pollution | Flooding, water patterns etc |
| Wind | Free, no transport | Scenic view, noise etc |
| Solar | Free, readily available | Expensive, inefficient etc |

**SNC1P – Exam Review: ASTRONOMY**

1. Define:

|  |  |  |
| --- | --- | --- |
| Celestial Object | Star an nuclear fusion | Luminous |
| Planet | Orbit | Solar system |
| Galaxy | Universe | Terrestrial planets |
| Gas giants | Light year | Astronomical unit (AU) |
| Sunspot | Solar Flare | Solar Wind |
| Aurora | Star cluster | Geocentric Model |
| Heliocentric model | Meteoroid | Asteroid and asteroid belt |
| Meteor | Comet | Revolution |
| Rotation | Phases of the moon | Waxing |
| Waning | Solar Eclipse | Lunar Eclipse |

1. What are the 3 characteristics a celestial object needs to be classified as a planet?

Orbit a star, contain enough gravity to make it a sphere, clear celestial objects p 293

1. Why is Pluto no longer considered a planet? It does not clear celestial objects
2. What is the order of the 8 planets in our solar system?

Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

1. Which 4 planets are terrestrial, and which 4 planets are gas giants?

Terrestial= Mercury, Venus, Earth, Mars

Gas Giants=Jupiter, Uranus, Neptune

1. What is a galaxy? What is the name of our galaxy? What is the shape of our galaxy?

Galaxy=collection of gas, planets, stars, dust, and other celestial objects

Our galaxy=Milky Way (a spiral galaxy)

1. Fill in the correct planet given the following descriptions:
2. Smallest planet = Mercury
3. Largest planet = Jupiter
4. Planet that orbits the Sun the fastest = Mercury
5. Planet that orbits the Sun the slowest = Neptune
6. Planet closest to the Sun = Mercury
7. Planet furthest away from the Sun = Neptune
8. Planet that is most similar to Earth = Mars
9. Rotates on a horizontal axis (on it’s side) = Uranus
10. Planet that has the most moons = Jupiter
11. Planet that does not have an atmosphere = Mercury
12. Red planet = Mars
13. What is a light year? How many km/s is a light year? What is a light year used to measure?

The distance light travels in one year. Speed is 300000 km/s.

1. What colour are the hottest stars? What colour are the coolest stars?

Hottest stars = blue

Coolest = red

1. What colour is our Sun? Is it classified as hot or cool? Yellow, average to cool temperature
2. What is the temperature of the core of our Sun? 15 000 000 million degrees Celcius
3. What are sunspots? What are solar flares? Sunspots are cool areas on the sun, solar flares are hot extensions/flames
4. What is the difference between the geocentric model and the heliocentric model?

Geocentric= earth is in the centre of the solar system and planets rotate around earth

Helicentric= the sun is in the centre and planets orbit the sun

1. What is an astronomical unit (AU)? How many kms is 1 AU? The astronomical unit (symbol au or AU) is a unit of length, roughly the distance from the Earth to the Sun. Approximately 150 000 000 million km.
2. What is the difference between rotation and revolution? How many days does it take the Earth to revolve around the Sun? How long does it take for the Earth to complete one rotation?

Rotation = spin on own axis (it takes Earth 24 hours)

Revolution= orbit another object (it takes Earth 365 days to travel around the Sun)

1. Why is the Eastern part of the world further ahead in the day than we are?
2. How long does it take the moon to revolve around the Earth? Rotation of the Earth
3. What are the phases of the moon in order from new moon?

[New moon](http://scienceworld.wolfram.com/astronomy/NewMoon.html), crescent waxing, half-moon waxing, gibbous waxing, [full moon](http://scienceworld.wolfram.com/astronomy/FullMoon.html), gibbous waning,half-moon waning, and crescent waning.

1. What is the name of the space station orbiting Earth? International Space Station
2. What is the difference between a solar eclipse and a lunar eclipse? Use 2 diagrams to show your answer.

A solar eclipse is a type of eclipse that occurs when the Moon passes between the Sun and Earth.

A lunar eclipse occurs when the Moon passes directly behind the Earth into its umbra (shadow). This can occur only when the Sun, Earth, and Moon are aligned.

1. Give one challenge with space travel and explain why it is a challenge. How is it overcome/solved?

e.g Travel time/speed

* Develop faster equipment through research development